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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/807,495

03/23/2004

Eric Berger

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42922

7590

10/27/2005

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EXAMINER

LE, JOHN H

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/807,495

Applicant(s)

BERGER ET AL.

Examiner

John H. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/23/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because of the form and legal phraseology often used in patent claims, such as "comprises" (line 4) should be avoided.
2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 103***

3. Claim 1 is rejected under 35 U.S.C. 103(a) as obvious over Petry et al. ("Equipment and method for field screening indicating soluble sulfates", October 5, 2002).

Regarding claim 1, Petry et al. teach a method of selecting in real time a soil stabilizing protocol (Petry et al., Study Protocol, page 2) for clay-bearing soils occurring in construction sites (Petry et al., abstract), comprising the steps of: obtaining and logging soil conductivity data values at selected locations within a defined site without disturbing the surface of the soil thereof (e.g. soil conductivity device identify soils that should be tested in the laboratory, Petry et al., Study Protocol, page 2); correlating the soil conductivity data values with corresponding estimates of soluble sulfate levels (e.g. Petry et al., Study Protocol, page 3; recommending a calcium-based soil stabilizing protocol (e.g. Petry et al., Objective of research, page 2); and performing

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a laboratory analysis of soil samples from selected portions of the defined site wherein the estimated soluble sulfate concentration equals or exceeds the predetermined threshold (e.g. Petry et al., Study Protocol, page 2).

Although, Petry et al. is silent on the teaching of the estimated level of soluble sulfates is less than a predetermined threshold, however it would have been obvious to one of ordinary skill at the time the invention was made to teach the estimated level of soluble sulfates is less than a predetermined threshold since civil infrastructure constructed using calcium-based agents to improve the behavior of subgrades (Petry et al., Objective of the Research, page 2).

***Allowable Subject Matter***

4. Claims 2-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, none of the prior art of record teaches or suggests the combination of a method of selecting in real time a soil stabilizing protocol for clay-bearing soils occurring in construction sites, comprising the steps of: obtaining and logging soil conductivity data values at selected locations within a defined site without disturbing the surface of the soil thereof; correlating the soil conductivity data values with corresponding estimates of soluble sulfate levels; recommending a calcium-based soil stabilizing protocol if the estimated level of soluble sulfates is less than a

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predetermined threshold; and performing a laboratory analysis of soil samples from selected portions of the defined site wherein the estimated soluble sulfate concentration equals or exceeds the predetermined threshold, wherein the step of obtaining comprises the steps of: scanning the defined site, without disturbing the surface of the soil, with a portable magnetometer to provide a plurality of soil conductivity data values, each at one of a plurality of respective selected surface locations in the defined site; and logging the soil conductivity data values at the selected surface locations in the defined site into a predetermined storage device. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 5, none of the prior art of record teaches or suggests the combination of a method of selecting in real time a soil stabilizing protocol for clay-bearing soils occurring in construction sites, comprising the steps of: obtaining and logging soil conductivity data values at selected locations within a defined site without disturbing the surface of the soil thereof; correlating the soil conductivity data values with corresponding estimates of soluble sulfate levels; recommending a calcium-based soil stabilizing protocol if the estimated level of soluble sulfates is less than a predetermined threshold; and performing a laboratory analysis of soil samples from selected portions of the defined site wherein the estimated soluble sulfate concentration equals or exceeds the predetermined threshold, wherein the step of correlating comprises the steps of: applying a conversion approximation to the soil conductivity

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data values to estimate the level of soluble sulfates; adjusting the estimated level of soluble sulfates for the level of sodium chloride in the soil of the defined site; and mapping accumulated soil conductivity data values stored into one of a first set or a second set of data values onto a site map, wherein each data value in each first or second set is associated with a corresponding surface location. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 10, none of the prior art of record teaches or suggests the combination of a method of selecting in real time a soil stabilizing protocol for clay-bearing soils occurring in construction sites, comprising the steps of: obtaining and logging soil conductivity data values at selected locations within a defined site without disturbing the surface of the soil thereof; correlating the soil conductivity data values with corresponding estimates of soluble sulfate levels; recommending a calcium-based soil stabilizing protocol if the estimated level of soluble sulfates is less than a predetermined threshold; and performing a laboratory analysis of soil samples from selected portions of the defined site wherein the estimated soluble sulfate concentration equals or exceeds the predetermined threshold, wherein the step of recommending comprises the steps of: recommending a calcium-based soil stabilizing protocol if the estimated level of soluble sulfates is less than 3000 ppm. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

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Regarding claim 11, none of the prior art of record teaches or suggests the combination of a method of selecting in real time a soil stabilizing protocol for clay-bearing soils occurring in construction sites, comprising the steps of: obtaining and logging soil conductivity data values at selected locations within a defined site without disturbing the surface of the soil thereof; correlating the soil conductivity data values with corresponding estimates of soluble sulfate levels; recommending a calcium-based soil stabilizing protocol if the estimated level of soluble sulfates is less than a predetermined threshold; and performing a laboratory analysis of soil samples from selected portions of the defined site wherein the estimated soluble sulfate concentration equals or exceeds the predetermined threshold, wherein the step of performing a laboratory analysis comprises the step of: performing a laboratory analysis of soil samples from selected portions of the defined site wherein the estimated soluble sulfate concentration equals or exceeds 3000 ppm; and updating the soil conductivity data values logged during the step of obtaining. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 16, none of the prior art of record teaches or suggests the combination of a method of selecting in real time a soil stabilizing protocol for clay-bearing soils occurring in construction sites, comprising the steps of: obtaining and logging soil conductivity data values at selected locations within a defined site without disturbing the surface of the soil thereof; correlating the soil conductivity data values with corresponding estimates of soluble sulfate levels; recommending a calcium-based

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soil stabilizing protocol if the estimated level of soluble sulfates is less than a predetermined threshold; and performing a laboratory analysis of soil samples from selected portions of the defined site wherein the estimated soluble sulfate concentration equals or exceeds the predetermined threshold, wherein, after the step of obtaining, further comprising the steps of: establishing a data interface between a portable magnetometer used to obtain the soil conductivity values and a computer used to control the operation of the portable magnetometer; and coupling a global positioning system (GPS) device to the portable magnetometer for providing to the computer via the data interface location data corresponding to each soil conductivity data value for use in mapping the data values for the defined site. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

#### ***Contact Information***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is 571 272 2275. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on 571 272 2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John H. Le

Patent Examiner-Group 2863

October 25, 2005

**BRYAN BUI**  
**PRIMARY EXAMINER**

A handwritten signature in black ink, appearing to read 'Bryan Bui', is written over the printed name and title.